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A Message from the State Superintendent of Public Instruction

All students, including those who are blind or visually impaired, need strong literacy skills. William Rowland of the World Blind Union compared “the sound of the fingers on a braille page to a rustling garden. . . a garden of knowledge, a garden of beauty.” Recognizing the importance of braille literacy, in 2002 California legislators enacted Assembly Bill 2326, which called for the establishment of an advisory task force to develop braille reading standards.

In response to this legislation, I established the Braille Reading Standards Task Force to develop a comprehensive set of braille standards. These standards are carefully aligned with the English-Language Arts Content Standards for California Public Schools for print readers.

California is a leader in the nation in the area of braille literacy, and we are among the first states to develop braille standards. The standards recognize that students who are blind and visually impaired face many challenges. Because learning without sight is extremely difficult, we must provide these students with the support and materials they need to succeed.

I want to thank the task force members for being at the forefront of this effort. I appreciate their hard work and their tremendous commitment to producing the quality standards that are found in this document. These standards will greatly help the educational community to provide braille instruction for our students who are blind and visually impaired.

Jack O'Connell

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Introduction

Braille: the key to opportunity

Braille is the obvious literacy medium for blind people and is an essential component of any educational program serving children who are blind. Braille is a tactile reading and writing system designed for use by individuals who are blind, and it is the primary means by which they become literate.

In the writings of people who are blind, the literary braille code has been called “the key to opportunity” (Schroeder, 1989, p. 290), “the means of emancipation, the greatest gift to the blind” (Eldridge, 1979, p.331), “a viable equivalent of the print media . . . highly flexible and adaptable” (Stephens, 1989, p. 288), and “this marvelous vehicle . . . [that] holds the key to genuine literacy and independence” (Napier, 1988, p. 144). A 1996 study regarding employment among individuals who are blind reveals that braille use has a high correlation with employment (Ryles). In the sample group, 44 percent of individuals who read braille were unemployed compared to 77 percent of individuals who are blind or visually impaired who do not read braille.

In this modern information age, questions have arisen about the continued importance of the braille code as technology has increased accessibility to information for blind individuals. It should be noted that much of the best assistive technology combines speech and braille and requires knowledge of the braille code by the consumer. Even as speech output technology has improved, computer users throughout the world who are blind have found that the ability to use braille input and output devices, to refer to hard copy and refreshable braille products, and to read and write in a tactile medium has enhanced their professional and personal lives. Advances in technology have improved and increased the use of the braille code. As long as sighted computer users access information in print on the screen or in hard copy format, computer users who are blind must have a tactile equivalent. Writings on the braille code make it clear that “as long as print is the primary literacy medium of sighted people, Braille will be the primary literacy medium for blind people” (Wittenstein, 1994, p. 523).

In addition to typical literacy activities, persons who are blind use braille for many daily tasks that sighted persons take for granted, such as using recipes to cook, measuring wood before cutting it with a power tool, and reading aloud to their children. For persons who are blind, braille represents independence and equality as well as literacy—in the workplace, in the home, and in the community. The importance of the braille code is more recognized today than at any time in its history (Schroeder, 1989).

Note: A glossary is included at the end of this document that explains the terminology used in the following pages.

Braille Reading Standards

These *Braille Reading Standards* begin with a straightforward philosophy:

- The teaching and learning of the braille code is as essential for a blind child as the teaching and learning of the print code is for a sighted child.
- The teaching and learning of the braille code has more similarities to teaching and learning print than differences.
- There are unique aspects to teaching and learning the braille code that necessitate these standards.

The standards contained in this document represent a strong consensus of the task force members on the skills, knowledge, and abilities that all students who are blind should master in order to be literate. These standards are carefully aligned with the *English-Language Arts Content Standards* for print readers but emphasize the unique differences in learning to read and write through the sense of touch.

Issues of Concern

Through the process of reaching consensus on these standards, this task force recognized several issues that may create obstacles to the implementation of the standards. Among the obstacles are the following:

Time for instruction. It is vital that children learning the braille code have at least as much direct instructional time in this literacy medium as children learning print. In many cases, children who are blind do not have sufficient access to a teacher knowledgeable in the braille code and in how to teach it. This severely limits the kind of continuous feedback that is vital in the emergence of early literacy skills.

Attitudes. Some professionals, parents, and children who are blind believe braille is a second-class medium unable to provide the same access as print. These negative and inaccurate attitudes can lead to decisions to substitute less efficient reading media and devices.

Service delivery. Most children who are blind are served by itinerant teachers who travel from school to school serving children in their home schools. This service delivery model can create an obstacle if the child does not have access to a classroom teacher with the knowledge of the braille code and of the teaching methodology of braille reading. Additionally, unlike sighted children who are frequently immersed in a print-friendly environment, children who are blind have fewer opportunities in their daily lives to interact with the braille code.

Teacher Training. Teachers of children who are blind need access to ongoing in-service training to enhance and refresh their university preparation activities. The opportunity to teach braille is one of the unique joys of this profession. Teachers need support, training, and time to provide these vital services

Technology. Although much of the assistive technology available enhances the use of braille, some people incorrectly believe that talking computers and audiotape can replace braille. However, access to information auditorily does not replace print or braille. It supplements these essential literacy media. It is also important to note that braille translation software, while a remarkable tool, is not sufficient to ensure accurate braille production. Use of such software requires persons knowledgeable about the braille code.

Age at onset of blindness. Children become blind at different times in their lives. Therefore, they may need to learn beginning braille literacy at any age and at any grade level, circumstances that provide additional challenges for students and teachers.

Inconsistency of methodologies. There is much debate regarding the optimum way to teach braille reading, particularly to children with additional learning needs. Research is also ongoing concerning when and how to introduce contracted braille to students. Practice varies widely.

Braille production standards. The quality of braille materials available varies widely. Access to certified transcribers varies widely as well. There must be a commitment to “dot-perfect” braille in our schools. Children who are blind deserve the same quality of materials as do print-reading children.

For children who are blind to attain true literacy, these obstacles must be overcome.

An Essential Discipline

As stated in the introduction to the *English-Language Arts Contents Standards*, “The ability to communicate well—to read, write, listen, and speak—runs to the core of human experience. Language skills are essential tools not only because they serve as the necessary basis for further learning and career development but also because they enable the human spirit to be enriched, foster responsible citizenship, and preserve the collective memory of a nation” (p. v).

This is just as true for children who are blind as it is for those who are sighted. For children who are blind, the path to this “essential discipline” is the braille code.

The Braille Bias

The task force believes that braille literacy is the foundation of all education for functionally blind students. Braille, the obvious method of reading for people who are blind, has been de-emphasized throughout the past several decades. Reading and writing for the student who is blind are becoming lost skills. Success depends upon the ability of a child to read and write, be it in print or braille. It is the conclusion of this task force that the child who is blind, in most cases today, is not offered the same opportunity as his or her sighted peer to become a successful and productive citizen.

The task force believes that the student who is blind is being denied a basic education right—the right to literacy.

Many reasons have been given for the de-emphasis of braille instruction, including the growing number of multidisabled blind children, audio materials, computers with speech, electronic magnification devices, the shortage of teachers qualified to teach braille, and increased student caseloads for teachers of students who are visually impaired. The following discussion is not intended to consider any of the factors mentioned above. This discussion centers on the attitudes toward the teaching of braille.

Some parents feel that their children who are blind should not learn braille. Overworked educators often also reinforce this attitude. Unfortunately, negative and mostly unfounded stereotypes exist around blindness. As a result, all too frequently a blind child is given a tape recorder instead of being taught braille. Although the teaching of braille is the teaching of a positive tool, braille instruction often is avoided for the wrong reasons.

This is a visually oriented world, and people who are blind should be able to access the vast amounts of printed material. The technology age has provided computers with synthesized speech, allowing blind people to bridge much of the gap to the print world.

Audio materials and magnification devices have their place in the lives of some people who are functionally blind. However, without the equivalent to a sighted person's pen and paper, a child who is blind falls behind. A blind student with braille skills is better able to compete and succeed in the real world (Ryles, 1996).

Braille instruction for the student who is blind is equivalent to literacy instruction for the sighted student. The teaching of braille is not the teaching of some exotic code or language or extracurricular class. Braille is the most critical and powerful literacy tool in the life of a person who is functionally blind (Ryles, 1996; Schroeder, 1989).

The task force believes that several decades of misguided attitudes surrounding the subject of braille instruction have resulted in too many blind people being deprived of this powerful tool. An all-out effort to reverse the attitudes toward braille instruction is essential for the education of the student who is blind.

Getting Ready for Braille

Early learning experiences set the stage for the development of literacy skills. Children with normal vision are exposed, by direct instruction and through incidental learning, to a wide variety of experiences, beginning at birth. At least 80 percent of the information they take in from the world around them is taken in through vision (Hill & Blasch, 1980). For children who are blind or visually impaired to have equivalent experiences upon which they can build their concepts, they must also be exposed to the world around them but in ways that will enable them to learn about it through senses other than vision.

Children with little or no useable vision experience the world through their ears, their fingers, their skin, their noses, their mouths, and their movements. Because of this difference in input, children who are blind or visually impaired will not generally develop the same kinds of concepts about the world as their peers with sight do. Hence, learning experiences from infancy and the reinforcement of those experiences must be carefully constructed. What is learned must be carefully assessed and monitored by those knowledgeable about how children who are visually impaired learn. Otherwise, children who are blind and visually impaired are at risk of developing such significantly different concepts about the world that confusion and misunderstanding result, leading to later difficulties in all areas of learning, including literacy.

In addition to coming to school with a different set of senses with which to focus on the world, children who are blind and visually impaired often have other differences in learning style:

- Learning without sight takes more time. Children who are blind and visually impaired need the time to explore objects physically that sighted children can take in at a glance.
- Children who are blind and visually impaired will need help integrating what they experience tactually with what they hear, smell, and taste.
- One-on-one time will be needed with an adult for a child who is blind or visually impaired to learn the names of objects, understand terms for movements, and acquire other labels for the world that sighted children might acquire incidentally.
- For reasons not wholly understood, many blind and visually impaired children have “tactual defensiveness,” an unwillingness to use their hands for exploration. This reluctance to touch must be overcome through patience, special techniques, and sensitive encouragement on the part of adults.
- Often children who are blind and those who are visually impaired may learn to tune out much of the language they hear because it is based on what the speakers have seen. It does not fit these children’s experiences, so it does not make sense to them, and it is ignored.
- A teacher must help students integrate their knowledge with what they hear others saying. This assistance requires an especially close and sensitive bond—one in

which the child trusts the teacher yet does not become dependent on the teacher for learning.

Preschool

Preschool programs set the stage for later school experiences and provide opportunities for children to learn “school behaviors,” such as sharing, taking turns, paying attention in a group, and following directions. Preschool programs that include children who are blind and visually impaired must also be organized to provide maximum opportunities for hands-on exploration, acquisition of fine and gross motor skills, kinesthetic development, development of language appropriate to their understanding for use in everyday activities (“pragmatic language”), and activities that promote interdependence and interaction with their peers.

Families of young children who are blind and visually impaired must work in partnership with teachers of students with visual impairments and other preschool teachers to ensure that the education their children are receiving is consistent and meets their student’s individual needs. Collaboration is essential to provide meaningful experiences that promote early literacy and readiness for reading and writing in braille.

Learning Environment

Young children who are blind or visually impaired require:

- A learning environment that is organized, structured, and predictable
- A learning environment that emphasizes hands-on experiences, activities that promote exploration with the senses, real-life experiences, and interactions that nurture independence and relationships with peers
- A learning environment that is calm, free of visual and auditory clutter, and moves at a pace appropriate to the students’ needs
- Immersion in a “braille-rich world,” as sighted children are immersed in a “print-rich world,” with braille labels on objects where incidental print is found, braille books on shelves, and braille labels on personal items.

Learning Opportunities

The curriculum for preschoolers who are blind and visually impaired should provide:

- Activities, such as cooking, “messy play,” and artwork, to engage their senses
- Opportunities for physical activities, including climbing, swinging, running, jumping, and riding on ride-on toys
- Books that include things to touch, including braille

- Opportunities for students to create their own stories, both “real” and “pretend,” that reflect their own experiences and chances to have these stories recorded for them, including in braille
- Opportunities for students to investigate books thoroughly and to learn the vocabulary of books (e.g., top, bottom, front, back, pages, covers, title, left to right) so that the children come to understand “how books work”
- Access to a braillewriter so that the students can “scribble” on it, much as sighted students “pretend to write”
- The opportunity for students, when they are ready, to learn tactile discrimination, braille letters, letter names, and sound-symbol relationships and to read lines of braille

Preschool Staff

The staff in a preschool that includes blind and visually impaired children should:

- Receive information about normal development in blind children and monitor the children’s concept acquisition frequently to ensure it is meaningful and accurate.
- Help sighted students interact appropriately with the blind or visually impaired children.
- Monitor their students’ listening attention and ensure the students have opportunities to listen to and understand stories, songs, and poetry, such as nursery rhymes.
- Recognize the importance of families’ participation in early literacy experiences and encourage the students’ families to read to them regularly.

The Wider Community

Preschool-age blind and visually impaired students should have access to:

- Opportunities for them and their families to meet and get to know competent braille readers, both older children and adults
- Opportunities for their families, friends, and general education teachers to learn the braille code, especially the braille alphabet, braille numbers, and punctuation

These tenets should be a part of the education of every child who is blind or visually impaired—not only in preschool but in kindergarten through twelfth grade as well.

Prerequisites for Print Reading for All Children

To learn to read, all children must demonstrate the specific skills noted below:

- The child’s cognitive ability is at five years of age or above.

- A typical five-year-old has an expressive vocabulary of several thousand words. The demonstration of expressive vocabulary may be oral, signed, or with the use of an augmentative communication device.
- The student understands that abstract symbols represent words and experiences. Meaning has to be attached to experiences.
- The child's attention span is at least ten minutes.
- A curiosity about books is evident.

Specific Prerequisites for Braille Reading

In addition to showing evidence of the skills listed above, a student should be ready to receive instruction in reading braille if he or she demonstrates competence in the following areas:

Concept Development

- Understanding that braille is a way of reading by using the fingers
- Curiosity about braille and braille books
- Interest in and attentiveness to stories told or read aloud and to songs sung
- Ability to remain engaged in a task for ten minutes while seated at a table
- Ability to follow one-step (preferably, two-step or more) directions
- Knowledge of left and right on his or her own body and on a page
- Understanding of "same" and "different" in a variety of contexts
- Interest in initiating activities

Tactile Skills

- Willingness to touch a variety of materials, including a line of braille on a page
- Ability to sort materials into two or more categories by touch
- Ability to match objects from a given set of concrete objects, based on one variable (e.g., shape, size, texture)
- Ability to sort based on one category and to state or demonstrate differences among items (e.g., shape, size, and texture)
- Ability to identify like shapes in various positions (e.g., recognizes two triangles as the same even though one has the apex pointing up and the other has the apex pointing down)

Hand Skills

- Skill and dexterity in making a variety of hand movements: pushing, pulling, twisting, turning, poking, tracing, squeezing, separating, joining, picking up, putting down, holding, cutting, and pasting

- Ability to use each hand independently in a coordinated manner to complete a task
- Sufficient finger strength and dexterity to form braille characters, using fingers correctly on a braillewriter while holding the stylus and slate correctly and punching dots

Preface to the Standards

These braille standards are written in “tracking form” so that teachers, parents, and administrators can easily see the differences between learning to read using print (visual medium) and learning to read and write using braille (tactile medium). The braille standards are integrated with the *English–Language Arts Content Standards for California Public Schools* (adopted by the State Board of Education in 1997). Sections that have been eliminated from the *English–Language Arts Content Standards* are presented with a strike-through line. Added sections are underlined.

A quick perusal of the braille standards dramatically demonstrates the need for disability-specific instruction on a daily basis for students who are blind at early ages. There are twice the number of kindergarten English-language arts standards for braille readers. Print standards are expanded by about 25 percent for braille readers from grade one through grade six. The new standards that have been added are on the mechanics of reading and writing braille. These are critical skills that students who are blind need to master. The additional standards clearly demonstrate that braille learners must receive ongoing, systematic, daily instruction by trained teachers of the blind in kindergarten and elementary grades.

By the time blind students reach middle school, the braille standards have very few additions compared to the print standards. In middle school and high school, the effective use of specialized technology (e.g., braille electronic notetakers, computer and online sources of information, screen readers, scanners, braille/print translation software, and embossers) becomes essential for accessing information and researching and writing reports.

Because of the additional skills required to read and write braille, many students will take longer to acquire the skills in the early grades compared to print readers. If students acquire good, solid, specialized skills, they will be better able to keep up with sighted students.

The Nemeth braille code for mathematics and scientific notation is separate from the literary braille code.¹ Each code has approximately 200 braille contractions or signs. The print standards do not address how to read, write, and line up mathematical problems; these are addressed in the *Mathematics Content Standards for California Public Schools*. Braille mathematics standards do not exist. Although reading and writing skills for mathematics have to be specifically taught to a braille student, they are not discussed here because this document is limited to English–language arts. However, students need to learn to read and write the Nemeth code, as appropriate to the material introduced at each grade level.

A great deal of thought and discussion took place during the development of these standards with respect to the order in which the braillewriter, slate and stylus, and braille

¹ The reader should be aware that an effort is under way to unify all braille codes (Unified English Braille Code).

notetakers are taught and at what grade levels. Although there is great variation in practice, the decision should depend on the individual student's needs and strengths. The braillewriter requires finger strength, but it is neither sophisticated nor capable of doing what an electronic braille notetaker can do. These standards include the teaching of braille writing skills according to prevailing practice. The braillewriter is taught starting in kindergarten, and the slate and stylus are taught in third through fifth grades.

There is no research at this time that makes recommendations either about the order of teaching these tools or the specific grade levels at which they should be introduced. There is agreement, however, that the braillewriter, slate and stylus, and notetaker are essential tools for students who are blind and that students need to master all three before starting middle school if they are to be independent, successful students. In these standards the use of the notetaker is not assigned to any grade level. A suggested notetaker curriculum is found in Appendix A and should be taught when the student is ready to use braille word processing skills. Although most students start studying the notetaker after they have acquired basic braille reading and writing skills, there are students who began with the notetaker in first grade who have been very successful.

Research continues on the advantages of teaching students to read initially with contracted braille or to start with uncontracted braille and gradually make the transition to contracted braille. The assumption in this document is that most braille readers will be taught braille contractions as they are introduced in grade-level text and that the readers will spell words in both contracted and uncontracted forms.

Although these standards are grade-specific, they follow a sequential instructional pattern applicable for students who lose their vision after age three.